

REMARKS

Reconsideration is requested.

Claims 2-16 have been canceled, without prejudice. Claims 1 and 17-22 are pending. Claim 17 has been withdrawn from consideration.

Reconsideration and withdrawal of the restriction requirement are again requested as the Examiner has not properly treated the present application as a 371 U.S. national phase of a PCT in applying the standards of unity of invention. Moreover, the Examiner is again urged to appreciate that the claims share the same or corresponding special technical features of the present CTPs which are enhanced membrane transduction potential and cytoplasmic localization property. Withdrawal of the restriction requirement is again requested.

The cytoplasmic transduction peptides(CTPs) of the present invention, especially SEQ ID NOS: 1, 2 and 13 are characterized by the following points:

Firstly, CTPs of the present invention exhibited enhanced membrane transduction potential, compared to PTD(protein transduction domain) and MTS (membrane transduction sequence) (see Fig 7).

Secondly, after cell membrane transduction, CTPs of the present invention remain in the cytoplasm of the cell, not migrating into nucleus (see Fig 11).

It is known that PTD itself serves as a functional NLS (nuclear localization sequence) and thereby accompanies the nuclear import of attached molecules. NLS functions as a binding site for importin- α , which is known to be involved in the nuclear import of proteins from the cytoplasm. An NMR study on the NLS has revealed that the presence of an extended coil-structure, which binds to the cleft of importin- α .

In this circumstance, the present inventors hypothesized that cytoplasmic transduction peptides (CTPs) might be derived from PTD, if specific changes in the amino acid structure were made, thereby inducing a conformational change of the extended coil-structure into a more rigid α -helix, which would be tolerable with regard to membrane transduction, but would not be sufficient for importin- α binding. Finally, they invented the present CTPs.

Examination of all of the claims is requested.

The details of now-canceled claim 16 have been added to claim 1 in the above amendments.

With regard to the partially initialed PTO 1449 Form received with the Office Action of September 21, 2005, further copies of Schwarze et al (Science, Vol. 285, 3 September 1999, pages 1569-1572); Ford et al (Gene Therapy, January 2001, Vol. 8, No. 1, pages 1-4); Vocero-Akbani et al (Methods in Enzymology, 2000, Vol. 322, pages 508-21); and WO 95/34665 are being collected and will be submitted for further consideration by the Examiner. Copies of U.S. Patent No. 5,807,746; and U.S. Patent No. 6,043,339 are not believed to be required for consideration of the same however the Examiner is requested to advise the undersigned if otherwise. Return of a completely initialed copy of previously-filed PTO 1449 Form is requested.

The objection of claims 15 and 16 is moot in view of the cancellation of claims 15 and 16 above.

The Section 102 rejection of claims 1-7 and 10-16 over Wouters-Tyrou et al (Journal Biological Chemistry 1991, 266, 17388-95) is obviated by the above amendments. Reconsideration and withdrawal of the rejection are requested in view of

the fact that the claims no longer recite SEQ ID NO:14, which is understood to have been the basis of the rejection. The claims have been amended without prejudice to advance prosecution.

The Section 112, first paragraph "enablement", rejection of claims 1-13 and 18-22 is traversed. Reconsideration and withdrawal of the rejection are requested as the applicants believe that one of ordinary skill in the art would be able to make and use the claimed invention, which recites CTPs of SEQ ID NOs: 1, 2 and 13, without undue experimentation.

In the present specification, CTPs of SEQ ID NOs 1 to 14 are prepared and tested for membrane transduction potentials and cytoplasmic localization. Thus, it is apparent that one of ordinary skill in the art can practice the claimed invention without undue experimentation. Withdrawal of the Section 112, first paragraph "enablement", rejection is requested.

The Section 112, second paragraph, rejection of claims 2, 3, 7 and 8 is moot in view of the above amendments.

The claims are submitted to be in condition for allowance and a Notice to that effect is requested. The Examiner is requested to contact the undersigned in the event anything further is required.

KIM, D. et al.
Appl. No. 10/509,620
February 21, 2006

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: /B. J. Sadoff/
B. J. Sadoff
Reg. No. 36,663

BJS:
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100